

IN THE CLAIMS:

Cancel Claim 10.

Amend Claims 1, 3 - 6, and 16 as set forth below:

1. (currently amended) A system for predicting the lapping property of a lapping plate, comprising:

a rotatable platform;

a lapping plate mounted to the rotatable platform for rotation therewith and having an axial center;

a holder having a specimen mounted thereto and an axial center, and the holder being positioned on the lapping plate, the holder also being undriven but free to rotate about the axial center of the holder relative to the lapping plate;

a fixture positioned adjacent to the lapping plate, the fixture having a stationary base, an arm mounted to and extending away from the base toward the lapping plate, and a guide feature mounted to the arm for contacting and supporting the holder in a single radial and angular position with respect to the axial center of the lapping plate;

friction detection means mounted to the fixture for measuring frictional force between the lapping plate and the specimen; and

a distance sensor mounted to the holder for detecting a gap distance between the distance sensor and the lapping plate[.]; and

a weight added to a top of the holder so that the specimen and the lapping plate experience a pressure that is analogous to a slider lapping pressure.

2. (previously presented) The system of claim 1, further comprising means for rotating the lapping plate for a specific time so that adequate removal of material from the specimen occurs, and a lapping rate is determined from a change in the gap distance over a time interval, and the lapping rate and friction are then assessed to determine if the lapping plate is acceptable.

3. (currently amended) [[The system of claim 1, further comprising]] A system for predicting the lapping property of a lapping plate, comprising:

a rotatable platform;

a lapping plate mounted to the rotatable platform for rotation therewith and having an axial center;

a holder having a specimen mounted thereto and an axial center, and the holder being positioned on the lapping plate, the holder also being undriven but free to rotate about the axial center of the holder relative to the lapping plate;

a fixture positioned adjacent to the lapping plate, the fixture having a stationary base, an arm mounted to and extending away from the base toward the lapping plate, and a guide feature mounted to the arm for contacting and supporting the holder in a single radial and angular position with respect to the axial center of the lapping plate;

friction detection means mounted to the fixture for measuring frictional force between the lapping plate and the specimen;

a distance sensor mounted to the holder for detecting a gap distance between the distance sensor and the lapping plate; and

means for determining a lapping rate of the lapping plate under a fixed load and a fixed rotation speed, such that a coefficient of friction and a Preston coefficient of the lapping plate can be calculated.

4. (currently amended) [[The system of claim 1,]] A system for predicting the lapping property of a lapping plate, comprising:

a rotatable platform;

a lapping plate mounted to the rotatable platform for rotation therewith and having an axial center;

a holder having a specimen mounted thereto and an axial center, and the holder being positioned on the lapping plate, the holder also being undriven but free to rotate about the axial center of the holder relative to the lapping plate;

a fixture positioned adjacent to the lapping plate, the fixture having a stationary base, an arm mounted to and extending away from the base toward the lapping plate, and a guide feature mounted to the arm for contacting and supporting the holder in a single radial and angular position with respect to the axial center of the lapping plate;

friction detection means mounted to the fixture for measuring frictional force between the lapping plate and the specimen;

a distance sensor mounted to the holder for detecting a gap distance between the distance sensor and the lapping plate; and wherein

the distance sensor is a non-invasive, unobstructed sensor for measuring a physically unobstructed gap distance between the distance sensor and the lapping plate.

5. (currently amended) The system of claim 4, wherein the distance sensor is an inductive distance sensor having a sensitivity of approximately 100 nm for a 10 mV sensor output.

6. (currently amended) [[The system of claim 1,]] A system for predicting the lapping property of a lapping plate, comprising:

a rotatable platform;

a lapping plate mounted to the rotatable platform for rotation therewith and having an axial center;

a holder having a specimen mounted thereto and an axial center, and the holder being positioned on the lapping plate, the holder also being undriven but free to rotate about the axial center of the holder relative to the lapping plate;

a fixture positioned adjacent to the lapping plate, the fixture having a stationary base, an arm mounted to and extending away from the base toward the lapping plate, and a guide feature mounted to the arm for contacting and supporting the holder in a single radial and angular position with respect to the axial center of the lapping plate;

friction detection means mounted to the fixture for measuring frictional force between the lapping plate and the specimen;

a distance sensor mounted to the holder for detecting a gap distance between the distance sensor and the lapping plate; and wherein

the guide feature comprises a set of guide wheels that keep the holder in place when the lapping plate is rotating.

7. (original) The system of claim 1, wherein the specimen comprises a plurality of specimens that are symmetrically spaced apart about the distance sensor.

8. (original) The system of claim 1, wherein the lapping plate is charged with abrasive.

9. (original) The system of claim 1, wherein the specimen is formed from a material used to fabricate sliders.

10. (canceled)

11. (original) The system of claim 1, wherein the friction detection means is mounted to the arm.

12. (original) The system of claim 1, wherein the friction detection means is a strain gage.

13. (previously presented) An apparatus for predicting the lapping property of a lapping plate, comprising:

a rotatable platform adapted to support a lapping plate thereon for rotation therewith, the lapping plate having an axial center;

a holder having a plurality of specimen mounted thereto and an axial center, the holder being adapted to be positioned on top of the lapping plate and the holder being undriven but free to rotate about the axial center of the holder relative to the lapping plate;

a fixture having a stationary base, an arm mounted to and extending away from the base;

a guide feature mounted to the arm for contacting and horizontally supporting the holder in a single radial and angular position with respect to the axial center of the lapping plate, the guide feature comprising a set of guide wheels that keep the holder in place when the lapping plate is rotating;

friction detection means mounted to the arm of the fixture and adapted to measure frictional force between the lapping plate and the specimen;

a non-invasive distance sensor mounted to the holder and adapted to detect a physically unobstructed vertical gap distance between the distance sensor and the lapping plate, wherein the plurality of specimen are symmetrically spaced apart from each other about the distance sensor;

the rotatable platform being adapted to rotate the lapping plate for a specific time so that adequate removal of material from the specimen occurs;

means for determining a lapping rate from a change in the gap distance over a time interval, and the lapping rate and friction are then assessed to determine if the lapping plate is acceptable;

a weight added to a top of the holder so that the plurality of specimen and the lapping plate experience a pressure that is analogous to a slider lapping pressure; and

means for determining the lapping rate of the lapping plate under a fixed load of the weight and a fixed rotation speed, such that a coefficient of friction and a Preston coefficient of the lapping plate can be calculated.

14. (canceled)

15. (canceled)

16. (currently amended) The apparatus of claim [[15]] 13, wherein the distance sensor is an inductive distance sensor having a sensitivity of approximately 100 nm for a 10 mV sensor output.

17. (canceled)

18. (canceled)

19. (original) The apparatus of claim 13, wherein the specimen is formed from a material used to fabricate sliders.

20. (canceled)

21. (canceled)

22. (original) The apparatus of claim 13, wherein the friction detection means is a strain gage.